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(54) Title: HYDROGEN SEPARATION USING OXYGEN ION-ELECTRON MIXED CONDUCTING MEMBRANES

(57) Abstract: A process for purification of hydrogen from a stream of synthesis gas or other reformat gases is described. The process, generally conducted at temperatures of approximately 800-1000 °C, involves the use of a cell in which a mixture of reformat gas and steam are flowed on one side of a dense solid state ceramic membrane, while steam is passed on the other side. High purity hydrogen is generated on the steam side. The membrane is similar to one that has in the past been used for oxygen purification and can be single or two phase, for example  $\text{La}_{0.9}\text{Sr}_{0.1}\text{Ga}_{0.8}\text{Mg}_{0.2}\text{O}_3 + \text{Pd}$ .

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